Partner Reported Opportunities (PROs)
For Reducing Methane Emissions

Use Foaming Agents

Compressors/Engines ☐
Dehydrators ☐
Pipelines ☐
Pneumatics/Controls ☐
Tanks ☐
Valves ☐
Wells ■
Other ☐

Applicable sector(s):

■ Production ☐ Processing ☐ Transmission and Distribution

Partners reporting this PRO: Texaco

Other related PROs: Install Plunger Lift Systems in Gas Wells, Install Velocity Tubing Strings

Technology/Practice Overview

Description

When the gas flow velocity is not sufficient to lift reservoir liquids, the liquids will choke gas flow, requiring a well blowdown to the atmosphere to expel liquids and restore gas production. One partner reported reducing the methane emissions associated with frequent well blowdowns through the use of foaming agents in their gas production wells with low bottomhole pressure.

Typically, a foaming agent (soap) is injected in the casing/tubing annulus by a chemical pump on a timer basis. The gas bubbling through the soap-water solution creates a gas-water foam which is more easily lifted to the surface for water removal.

Methane Savings

2,520 Mcf/yr

Costs

Capital Costs (including installation)
☐ < $1,000 ☐ $1,000-$10,000 ■ > $10,000

Operating and Maintenance Costs (Annual)
☐ < $100 ■ $100-$1,000 ☐ > $1,000

Payback (Years)

☐ 0-1 ☐ 1-3 ■ 3-10 ☐ > 10

Principal Benefits

Reducing methane emissions was:

☐ **A primary justification for the project** ■ **An associated benefit of the project**

Operating Requirements

A means of power will be required to run the surface injection pump. The soap supply will also need to be monitored. If the well is still unable to unload fluid, additional, smaller tubing may be needed to help lift the fluids.

Applicability

Gas production wells without the existing reservoir pressure necessary to lift wellbore liquids are excellent candidates. The use of foaming agents is not recommended for condensate production wells.

Methane Emission Reductions

Methane emissions occur during blowdown to unload gas production wells. Reported methane emission reductions are based on reducing the frequency of well unloading..

Economic Analysis

Basis for Costs and Savings

Methane emission reductions of 2,520 Mcf/yr are based on one well, reducing the frequency of blowdown on one well from bi-weekly to monthly with 180 Mcf methane emissions per blowdown.

Discussion

The installation of a foaming agent system will require surface facilities including a soap reservoir, injector pump and a motor valve with a timer. If capillary tubing is required, the use of a workover rig and crew for one day will be necessary. The primary benefit to the use of soaping systems is the extension of the well's productive life.